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ADHESIVE, CHEMICAL, FOOD, PAINT, PHARMACEUTICAL, PIGMENT, SYNTHETIC RESIN
INDUSTRIES, UNDER SMALL SCALE, TURN-KEY PROJECT, PLANT MACHINERY EQUIPMENTS AND
PROCESS

**PROJECT FOR THE MANUFACTURE
OF
FLY ASH BRICKS**

QUALITY AND STANDARDS : IS 12894 : 1990

HIGHLIGHTS : Capacity 120 LAC bricks per annum per day of
8 hours shift in two shifts.

- a) No drying No Dryer
- b) No firing, No kiln
- c) No carbon emission
- d) Only curing by water
- e) Lighter in weight & stronger than ordinary clay bricks.
- f) Cheaper than ordinary bricks
- g) Eco-friendly process
- h) Raw materials : (i) Fly Ash, (ii) LIME, (iii) Gypsum,
(iv) Sand, (v) Water
- i) Best Indian Technology
- j) Working days : 300/annum
- k) Factory at Barrackpore near Kolkata may be visited.

INTRODUCTION

Fly Ash bricks are made of fly ash, lime, gypsum and sand. These can be extensively used in all building constructional activities similar to that of common burnt clay bricks. The fly ash bricks are comparatively lighter in weight and stronger than common clay bricks. Since fly ash is being accumulated as waste material in large quantity near thermal power plants and creating serious environmental pollution problems, its utilization as main raw material in the manufacture of bricks will not only create ample opportunities for its proper and useful disposal but also help in environmental pollution control to a greater extent in the surrounding areas of power plants. In view of superior quality and eco-friendly nature, and government support the demand for Fly Ash Bricks has picked up.

MARKET POTENTIAL

The country consumes about 180 billion tones bricks, exhausting approximately 340 billion tones of clay every year and about 5000 acres of top soil land is made unfertile for a long period. The Government is seriously concerned over soil erosion for production of massive quantities of bricks, in the background of enormous housing needs.

The excellent engineering property and durability of fly ash brick enlarges its scope for application in building construction and development of infrastructure, construction of pavements, dams, tanks, under water works, canal lining and irrigation work etc. Enormous quantities of fly ash is available in and around thermal power stations in all the states. The demand of bricks could be met by establishing small units near thermal power stations and to meet the local demand with less transportation costs.

TECHNICAL ASPECTS

Process of Manufacture

Fly ash, lime sand and gypsum are manually fed into a pan mixer where water is added in the required proportion for intimate mixing. The proportion of the raw material is generally in the ratio 60-80% of fly ash 10-20% lime, 10% Gypsum and 10% sand, depending upon the quality of raw materials.

After mixing, the mixture is shifted to the hydraulic/mechanical presses. The bricks are carried on wooden pellets to the open area where they are dried and water cured for 21 days. The bricks are tested and sorted before dispatch.

QUALITY CONTROL AND STANDARDS

The Bureau of Indian Standards has formulated and published the specification for maintaining quality of product and testing purpose.

IS 12894:1990.

PRODUCTION CAPACITY (PER YEAR)

Quantity (Nos.) : 120 Lakhs bricks

Value : Rs.5,87,00,000.

Motive Power : 60 KW.

POLLUTION CONTROL

The technology adopted for making fly ash bricks is eco-friendly. It does not require steaming or auto calving as the bricks are cured by water only. Since the firing process is avoided, there are no emissions and no effluent is discharged. On the other hand, it solves the problem of fly ash disposal.

ENERGY CONSERVATION

General precautions for saving electricity are required to be followed by the unit by adopting energy conservation techniques not

only to conserve the power but also to save considerable expenditure in their own and also in the interest of the nation as a whole.

FINANCIAL ASPECTS

A. Fixed Capital

<u>(i) Land and Building</u>	<u>(Rs.)</u>
Land 1 Acre @ Rs.3,20,000	3,20,000
Building Area 165 sq.mt. @ Rs.22,00 per sq. mt.	3,63,000
Working Shed 150 sq. mt. @ Rs.1,200 per sq. mt.	1,80,000
Boundary wall, Gate L.S.	67,000
Fly Ash Pond and Curring Tank L.S.	1,20,000
Total	10,50,000

(ii) Machinery and Equipments

<u>Description</u>	<u>Ind/Imp.</u>	<u>Qty.</u>	<u>Prince (Rs.)</u>
Pan mixer (run by 20 HP motor)	Ind.	2	31,50,000
Hydraulic Press (30 Tonnes Cap.)	Ind.	2	63,00,000
Extruder & atocuter set		1	75,00,000
Belt Conveyor (Run by 3 HP motor)	Ind.	1	4,70,000
Deep Tube Well	Ind.	1	2,35,000

Lab for quality control		5,50,000
Generator		4,25,000
Steel Plates and Extra Moulds	L.S.	3,85,000
Trolleys	L.S.	8,30,000
Office, Furniture and Equipments	L.S.	1,32,000
Installation and Erection charge	L.S.	35,28,000
(iii) <u>Pre-operative Expenses</u>	Total	1,70,000
Total Fixed Capital (i+ii+iii)		

B. Working Capital (Per Month)

(i) Staff and Labour (per month)

<u>Description</u>	<u>Nos.</u>	<u>Salary</u>	<u>Total Salary (Rs.)</u>
Manager	1		
Production Engineer	1		
Skilled Workers	5		
Un-skilled Workers	10		
Chowkidars	3		
Peons	2		
Cashier-cum-Clerk	1		
Salesman	2		

Add perquisites @ 15%

FLY ASH BRICKS

(ii) Raw Material (Per Month)

<u>Description</u>	<u>Ind/Imp.</u>	<u>Qty. (Ton.)</u>
Fly Ash	Ind.	2000
Lime	Ind.	500
Sand	Ind.	250
Gypsum	Ind.	250

(iii) Utilities per (month) Rs.

Power

Fuel

(iv) Other Contingent Expenses (per month) (Rs.)

Postage and Stationery

Telephone

Transportation

Insurance

Repair and Maintenance

Advertisement and Publicity

Misc. Expenditure